Invited Platform presentation for the Session titled: Ensuring Quality Toxicity Results

TITLE: Improving the Quality of Aquatic Toxicity Tests: Lessons Learned and Proficiency Needs

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Aquatic toxicity testing methodologies have been widely used to assess potential adverse effects of chemicals and wastewater discharges on aquatic life in the United States since the 1970's. Over the years, continued method modifications, increased training, and technical resources have abounded for toxicity tests. In whole effluent testing, the use of the toxicity test has become a valuable component of most water quality monitoring programs. Use of standardized acute and sublethal freshwater and marine methods specify test acceptability criteria (TAC) for survival, growth, reproduction and provide specific testing procedures; yet data reviews of test results have shown that laboratories may have their own interpretations of the required procedures. Further, as laboratories become proficient, they can produce very tight growth or reproduction data; and this 'tight' data may trigger a test results being rejected from the discharge monitoring report (DMR) . In other instances, the test method may be performed with various small modifications that affect the reporting of the effect. For instance, while the chronic *Ceriodaphnia dubia* test is a three-brood test, some laboratories report it as a 7-d test. While the test may typically take 7-d, caution must be exercised to differentiate between three or four broods. Data reports with 7-d tests that have *C. dubia* young counts as high as 45-55 per female indicate that four broods were obtained and included in the count. In this paper, we discuss the progress that has been made in the conduct and application of these tests and a variety of ways laboratories may not meet the required additional TAC's for effluent sampling and renewal, reference toxicant testing, counting of broods for test termination, and endpoint calculations (e.g., LC/IC). We'll discuss the data reviews needed and the application of the performance requirements to each test result to ensure the best interpretation of effluent toxicity. We'll discuss the progress that has been made in conducting valid tests, existing challenges, and recommendations to improve the quality and utility these tests, including suggestions for laboratory proficiency guidelines. *This abstract does not necessarily reflect EPA policy.*